MERCHANT
PHILADELPHIA

General Arrangement

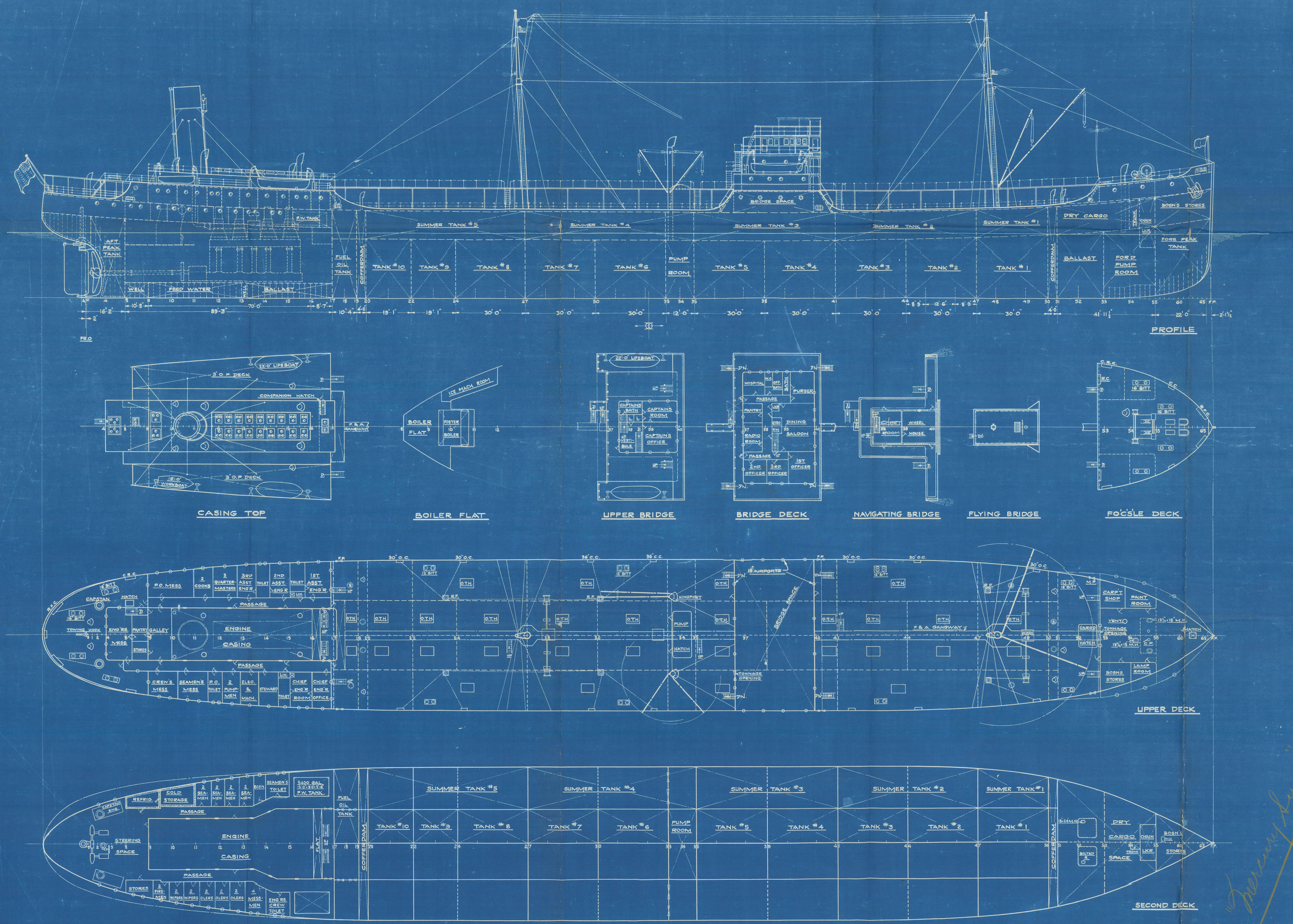
M. S. MERCURY SUN

Sun S B & D D Co Hull 133

Phe Rpt N° 6421

RETAIN

W1199-0060


PROFILE
SUMMER TANK #5
SUMMER TANK #4
SUMMER TANK #3
SUMMER TANK #2
SUMMER TANK #1
DRY CARGO
BOSNS STORES
FORE PEAK TANK
BRIDGE SPACE
AFT PEAK TANK
F.W. TANK
WELL
FEED WATER
BALLAST
FUEL OIL TANK
COFFERDAM
TANK #10
TANK #9
TANK #8
TANK #7
TANK #6
PUMP ROOM
TANK #5
TANK #4
TANK #3
TANK #2
TANK #1
BALLAST
FOR'D PUMP ROOM
CASING TOP
22'-0" LIFEBOAT
3'-0" P. DECK
COMPANION HATCH
18'-0" WORKBOAT
F.&A. GANGWAY
BOILER FLAT
ICE MACH ROOM
FOSTER 10' BOILER
UPPER BRIDGE
CAPTAINS BATH
CAPTAINS ROOM
CAPTAINS OFFICE
BRIDGE DECK
HOSPITAL
PURSER
PANTRY
DINING SALOON
RADIO ROOM
2ND OFFICER
3RD OFFICER
1ST OFFICER
NAVIGATING BRIDGE
CHART ROOM
WHEEL HOUSE
FLYING BRIDGE
FO'C'SLE DECK
UPPER DECK
CAPSTAN
TOWING HOOK
ENG'RS MESS
PANTRY
GALLEY
F.O. MESS
COOKS
QUARTER-MASTERS
3RD ASST ENG'R
2ND ASST ENG'R
1ST ASST ENG'R
ENGINE CASING
PASSAGE
CREW'S MESS
SEAMENS MESS
P.O. TOILET
PUMP-MEN
ELEC. & MACH.
CHIEF ENG'RS ROOM
CHIEF ENG'R OFFICE
O.T.H.
PUMP HATCH
16 AIRPORTS
BRIDGE SPACE
TONNAGE OPENING
CARPT SHOP
PAINT ROOM
CARGO HATCH
LAMP ROOM
SECOND DECK
STEERING SPACE
REFRIG.
COLD STORAGE
SEA-MEN
BOSN
SEAMEN'S TOILET
5400 GAL. F.W. TANK
STORES
FIRE-MEN
WIPERS
OILERS
MESS-MEN
ENG. RS. CREW TOILET
CHAIN LKR
BOSNS STORES

ALTERATIONS

NO.	DATE	DESCRIPTION	APPROVED
1	9-15-30	16 AIRPORTS, 15" DIA. ADDED IN BRIDGE SPACE.	
2	2-18-'31	PORT & STBD. LADDERS TO FLYING BRIDGE, REMOVED. REPLACED BY ONE LADDER AT AFTER END OF CHART ROOM.	
3	3-2-31	FUEL OIL TANK IN DOUBLE BOTTOM AFT CHANGED TO BALLAST.	
4	3-13-31	LADDERS ADDED BETWEEN UPPER AND BRIDGE DECK.	
5	3-13-'31	FLYING BRIDGE SHORTENED.	

MATERIAL

PRINCIPAL DIMENSIONS

L.B.P.------------------------480'-0"
BREADTH-M'L'D.----------------65'-9"
DEPTH-M'L'D.------------------37'-0"

ACTION

PLAN PRINTS

PRINT NO.	DEPT.	NO. PTS.	PRINT NO.	DEPT.	NO. PTS.	PRINT NO.	DEPT.	NO. PTS.	PRINT NO.	DEPT.	NO. PTS.
Cont. 132+133											
1	8	1	34	38	1	65-66	65	2			
2	3	1	35-37	45	3	67	66	1			
3	30	1	38	47ML	1	68	67	1			
4-5	33	2	39-40	65	2	69	68	1			
6-7	34	2	41	66	1	70	8	1			
8-9	36	2	42	67	1	71	78H	1			
10	38	1	43	68	1	72	79	1			
11-13	45	3	44	78	1	73	81	1			
14	47ML	1	45	78H	1	74	9	1			
15-16	65	2	46	88	1	75	97	1			
17	66	1	47	81	1	76-77	47	2			
18	67	1	48	79	1	19	Feb. 31	[illegible]			
19	68	1	49	97	1	Cont. 132+133					
20	78	1	25	Sept. 30	[illegible]	78	38	1			
21	78H	1	50	47	1	79	78	1			
22	88	1	10	Feb. 31		80	78H	1			
23	81	1	Cont. 132+133		2	Mar. 31		[illegible]			
24	97	1	51	8	1						
18	July 30	[illegible]	52	30	1						
Cont. 132+133			53	30s	1						
25	8	1	54-55	33	2						
26	30	1	56-57	34	2						
27	30s	1	58-59	36	2						
28-29	33	2	60	38	1						
30-31	34	2	61-63	45	3						
32-33	36	2	64	47ML	1						

M.S. "Mercury Sun"

HULL DIVISION

GENERAL ARRANGEMENT

SCALE—ARRANG'T = 1/16" = 1 FT.
SCALE—DETAIL = — 1 FT.
DATE 6-27-30

DEL'N	TRACED	CHECKED	APPROVED
	G.W.W.	Johnson	Hadley N.A.

SUN SHIPBUILDING & DRYDOCK CO.
CHESTER, PA., U. S. A.

DR. No. 132-700A-A

W1199-0060

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Lloyd's Register Foundation

Sun SB & D Co

Hull Nº 133

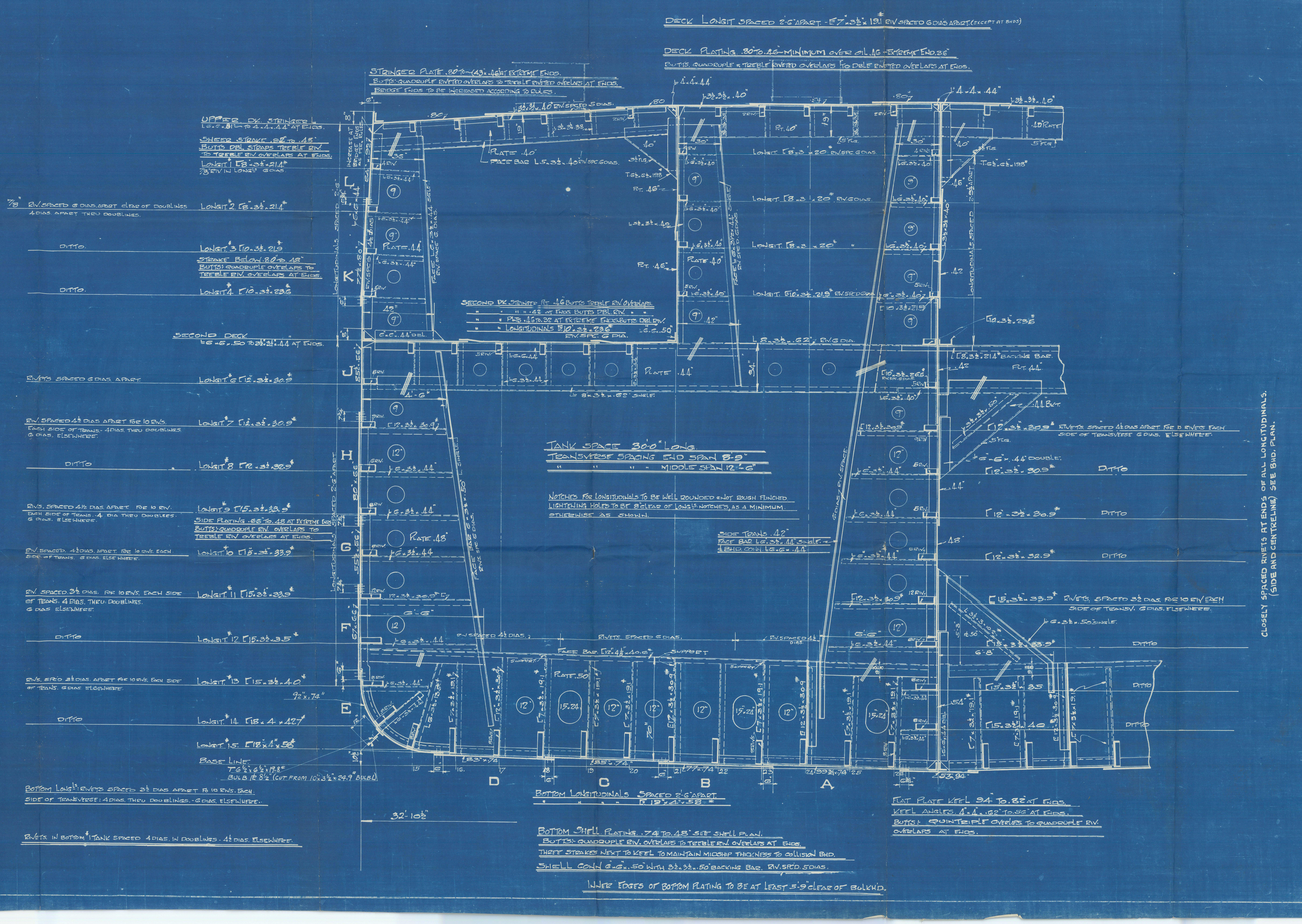
M.S. MERCURY SUN.

Midship Section

Phil Rpt. Nº 6421

RETAIN

W1199-0061


DECK LONGIT SPACED 2'-6" APART. - [7" x 3½" x 19.1# RIV SPACED 6 DIAS APART. (EXCEPT AT BHDS)
DECK PLATING .80" TO .46 - MINIMUM OVER OIL .46 - EXTREME END .36"
BUTTS. QUADRUPLE & TREBLE RIVETED OVERLAPS TO DBLE RIVETED OVERLAPS AT ENDS.
STRINGER PLATE .80" TO (43 x .46) AT EXTREME ENDS.
BUTTS: QUADRUPLE RIVETED OVERLAPS TO TREBLE RIVETED OVERLAPS AT ENDS.
BRIDGE ENDS TO BE INCREASED ACCORDING TO RULES.
UPPER DK. STRINGER L
L 6 x 6 x .81" TO 4 x 4 x .44" AT ENDS.
SHEER STRAKE .92" TO .48"
BUTTS DBL STRAPS TREBLE RIV.
TO TREBLE RIV. OVERLAPS AT ENDS.
LONGIT. 1 [8" x 3½" x 21.4#
7/8" RIV. IN LONG'LS 6 DIAS.
INCREASE AT BRIDGE ENDS AS PER RULES
7/8" RIV. SPACED 6 DIAS. APART CLEAR OF DOUBLINGS
4 DIAS. APART THRU DOUBLINGS.
LONGIT. #2 [8" x 3½" x 21.4#
DITTO.
LONGIT. #3 [10 x 3½ x 21.9#
STRAKE BELOW .80" TO .48"
BUTTS: QUADRUPLE OVERLAPS TO
TREBLE RIV. OVERLAPS AT ENDS.
DITTO.
LONGIT. #4 [10" x 3½" x 23.6#
SECOND DECK
L 6 x 6 x .50 TO 3½" x 3½" x .44 AT ENDS.
RIVETS SPACED 6 DIAS. APART.
LONGIT. #6 [12" x 3½" x 30.9#
RIV. SPACED 4½ DIAS. APART FOR 10 RIVS.
EACH SIDE OF TRANS. - 4 DIAS. THRU DOUBLINGS.
6 DIAS. ELSEWHERE.
LONGIT. #7 [12 x 3½ x 30.9#
DITTO
LONGIT. #8 [12 x 3½ x 32.9#
RIVS. SPACED 4½ DIAS. APART. FOR 10 RIV.
EACH SIDE OF TRANS. - 4 DIA THRU DOUBLERS.
6 DIAS. ELSEWHERE.
LONGIT. #9 [15 x 3½ x 33.9#
SIDE PLATING .66" TO .48 AT EXTREME ENDS
BUTTS: QUADRUPLE RIV. OVERLAPS TO
TREBLE RIV OVERLAPS AT ENDS.
RIV. SPACED. 4½ DIAS. APART. FOR 10 RIVS. EACH
SIDE OF TRANS. 6 DIAS. ELSEWHERE.
LONGIT. #10 [15 x 3½" x 33.9#
RIV. SPACED. 3½ DIAS. FOR 10 RIVS. EACH SIDE
OF TRANS. 4 DIAS. THRU: DOUBLINGS.
6 DIAS ELSEWHERE.
LONGIT. #11 [15" x 3½" x 33.9#
DITTO
LONGIT. #12. [15 x 3½ x 3.5#
RIVS. SPC'D 3½ DIAS. APART FOR 10 RIVS. EACH SIDE
OF TRANS. 6 DIAS. ELSEWHERE.
LONGIT. #13 [15 x 3½ x 4.0#
92" x .74"
DITTO
LONGIT. #14 [18 x 4 x 42.7#
LONGIT. #15. [18" x 4" x 58#
BASE LINE.
T 6½" x 6½" x 19.8#
BULB PL 8½" (CUT FROM 10" x 3½" x 24.9# BULB L)
BOTTOM LONG'LS: RIVETS SPACED 3½ DIAS APART FO 10 RIVS. EACH.
SIDE OF TRANSVERSE: 4 DIAS. THRU DOUBLINGS. - 6 DIAS. ELSEWHERE.
RIVETS. IN BOTTOM #1 TANK SPACED 4 DIAS. IN DOUBLINGS - 4½ DIAS. ELSEWHERE.
LONGITUDINALS SPACED 2'-6"
LONGITUDINALS SPACED 2'-6" APART.
L
K
J
H
G
F
E
D
C
B
A
PLATE .40"
FACE BAR L 5 x 3½ x .40 RIV. SPC. 6 DIAS.
LONGIT. [8 x 3 x 20# RIV. SPC. 6 DIAS.
LONGIT. [8 x 3 x 20#
LONGIT. [10" x 3½" x 21.9# RIV. SPC. 6 DIAS.
PLATE .40"
PT. .46"
SECOND DK. STRINGER PT. .46 BUTTS TREBLE RIV. OVERLAPS.
" " " " .42 AT ENDS. BUTTS DBL. RIV. " "
" " PLTS .46 TO .32 AT EXTREME ENDS. BUTTS DBL. RIV.
" " LONGITUDINALS [10" x 3½ x 23.6# RIV. SPC. 6 DIA.
L 6 x 6 x .50"
L 8 x 3½ x .62" RIV. 6 DIA.
PLATE .44"
L 8" x 3½ x .62" SINGLE.
[8 x 3½ x 21.4# BACKING BAR
PT. .44"
TANK SPACE 30'-0" LONG.
TRANSVERSE SPACING END SPAN 8'-9"
" " " " MIDDLE SPAN 12'-6"
NOTCHES FOR LONGITUDINALS TO BE WELL ROUNDED & NOT ROUGH PUNCHED.
LIGHTENING HOLES TO BE 8" CLEAR OF LONG'LS. NOTCHES, AS A MINIMUM.
OTHERWISE AS SHOWN.
SIDE TRANS .42"
FACE BAR L 6 x 3½" x .44" SINGLE.
& BHD. CONN. L 6 x 6 x .44"
PLATE .48"
FACE BAR 6 x 3½ x .50" L SINGLE.
RIVS. SPC. 6 DIAS.
[12" x 3½" x 30.9# RIVETS SPACED 4½ DIAS APART FOR 10 RIVETS EACH
SIDE OF TRANSVERSE 6 DIAS. ELSEWHERE.
L 6" x 6" x .44" DOUBLE.
[12 x 3½ x 30.9# DITTO
[12" x 3½ x 30.9# DITTO
[12 x 3½ x 32.9# DITTO
[15 x 3½ x 33.9# RIVETS. SPACED 3½ DIAS. FOR 10 RIV EACH
SIDE OF TRANSV. 6 DIAS. ELSEWHERE.
L 6 x 3½ x .50 SINGLE.
[15 x 3½ x 33.9# DITTO
[15 x 3½ x 35 DITTO
[15 x 3½ x 40 DITTO
T 6½ x 6½ x 19.8#
CLOSELY SPACED RIVETS AT ENDS OF ALL LONGITUDINALS.
(SIDE AND CENTRELINE) SEE BHD. PLAN.
FACE BAR [12 x 4 x 40.0# SUPPORT
RIVETS SPACED 6 DIAS.
15.24
12"
9"
L 83" x .74
L 85" x .74"
L 77 x .74"
L 99¾ x .74"
L 53 x .94"
32'-10½"
BOTTOM LONGITUDINALS SPACED 2'-6" APART.
" " " " [12" x 4" x 58#
BOTTOM SHELL PLATING. .74 TO .48" SEE SHELL PLAN.
BUTTS: QUADRUPLE RIV. OVERLAPS TO TREBLE RIV. OVERLAPS AT ENDS.
THREE STRAKES NEXT TO KEEL TO MAINTAIN MIDSHIP THICKNESS TO COLLISION BHD.
SHELL CONN L 6 x 6" x .50" WITH 3½ x 3½ x .50" BACKING BAR. RIV. SPC'D. 5 DIAS.
INNER EDGES OF BOTTOM PLATING TO BE AT LEAST 5'-9" CLEAR OF BULKH'D.
FLAT PLATE KEEL .94" TO .82" AT ENDS.
KEEL ANGLES. 4" x 4" x .62" TO .56" AT ENDS.
BUTTS: QUINTRIPLE OVERLAPS TO QUADRUPLE RIV.
OVERLAPS AT ENDS.

PRINCIPAL DIMENSIONS

LENGTH	480'-0" B.P.
BREADTH	65'-9" MOULDED
DEPTH	37'-0" MOULDED TO UP. DK.

ALTERATIONS		
NO.	DATE	DESCRIPTION

MATERIAL

CHARGE

ACTION

PLAN PRINTS

B. Arnott

J. French

APPROVED

HULL DIVISION

MIDSHIP SECTION.

BRACKETLESS TYPE 13000 TON TANKER

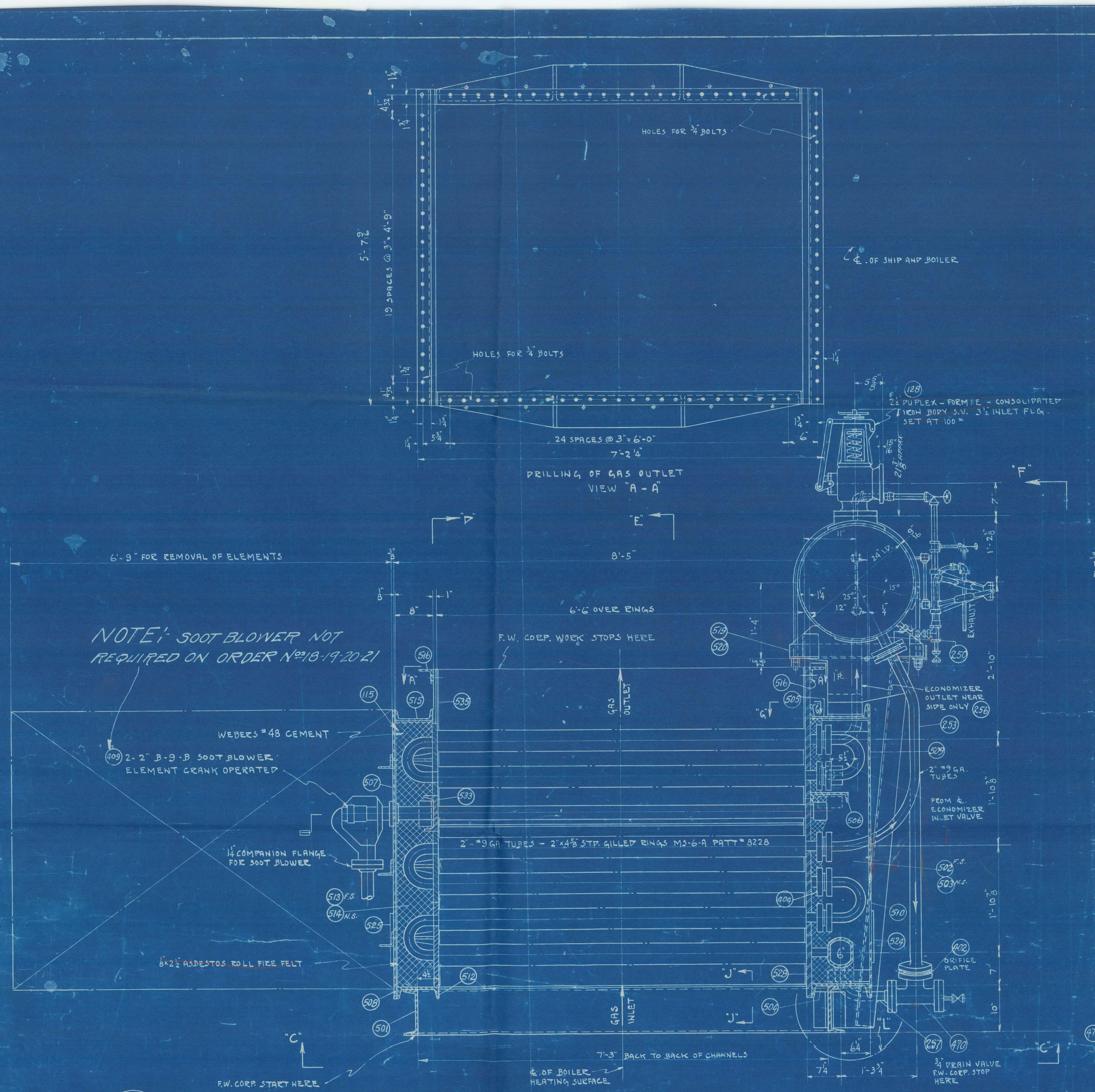
SCALE - ARRANG'T = 1/2" = 1 FT.
SCALE - DETAIL = 1/2" = 1 FT. DATE NOV. 9 1927

DRAWN	TRACED	CHECKED	APPROVED
H.McD	H.McD		John Whalen

SUN SHIPBUILDING & DRYDOCK CO.
CHESTER, PA. U. S. A.

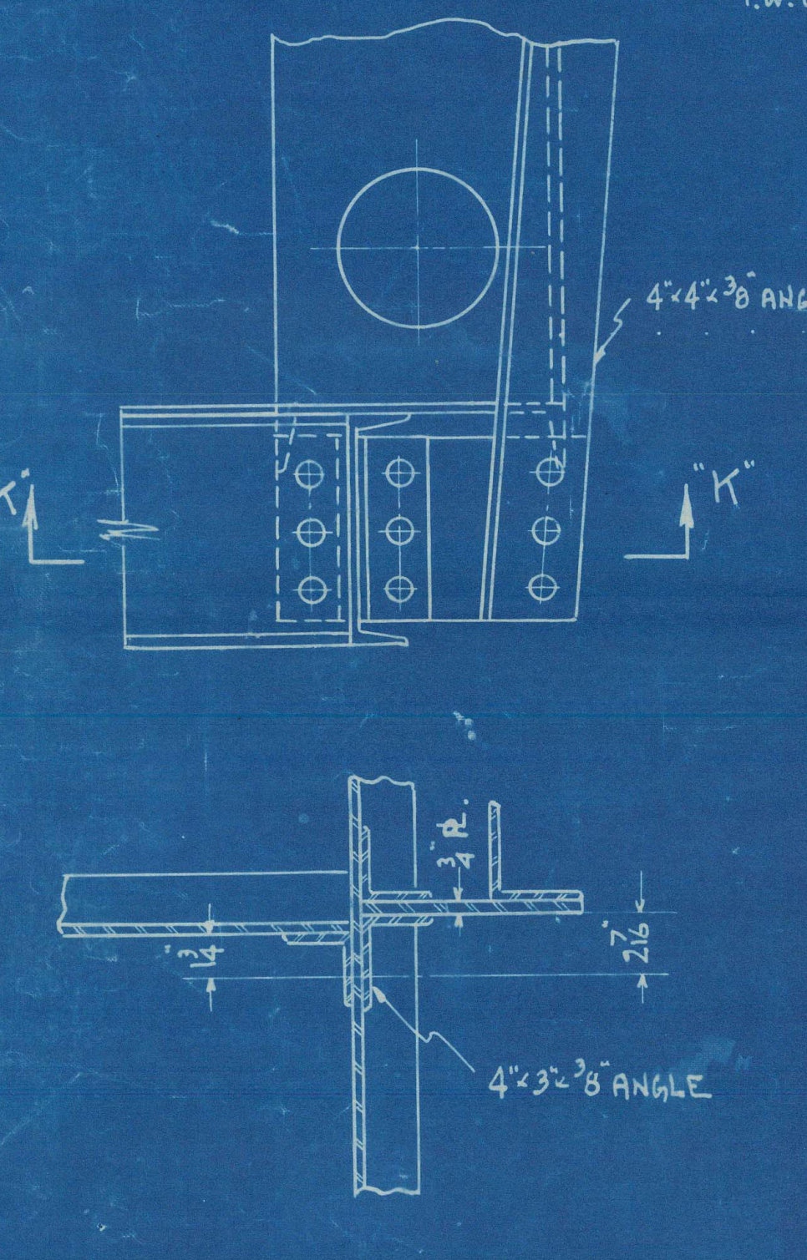
DR. No. -700-B-

(W1199-0061)

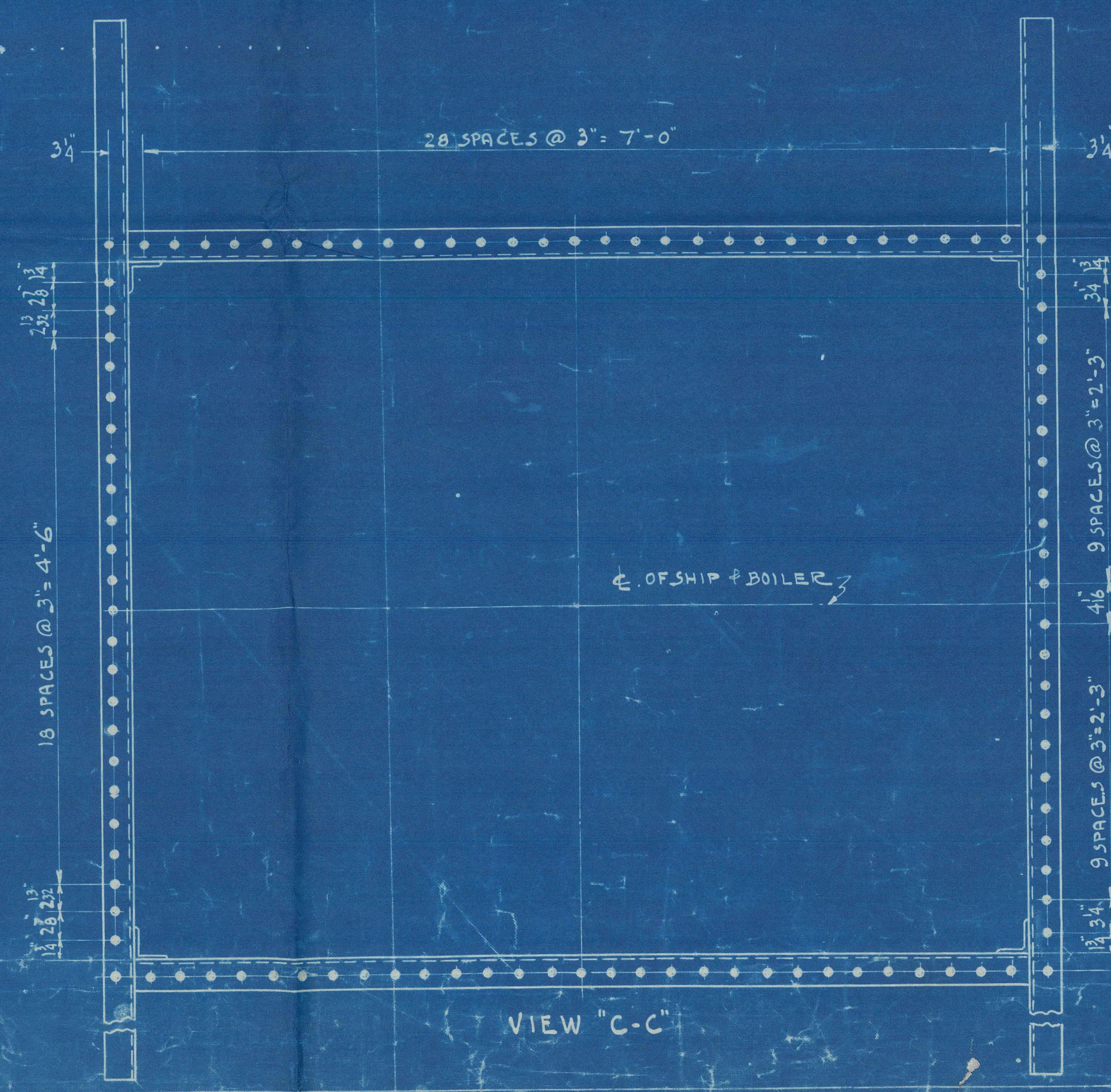

HOLES FOR ⅞" BOLTS
19 SPACES @ 3"= 4'-9"
5'-7½"
℄ OF SHIP AND BOILER
24 SPACES @ 3"= 6'-0"
7'-2¼"
128
2½" DUPLEX - FORM E - CONSOLIDATED IRON BODY S.V. 3½" INLET FLG. SET AT 100#
"F"
"E"
"D"
6'-9" FOR REMOVAL OF ELEMENTS
8'-5"
6'-6" OVER RINGS
NOTE:- SOOT BLOWER NOT REQUIRED ON ORDER Nos 18-19-20-21
P.W. CORP. WORK STOPS HERE
WEBERS #48 CEMENT
409 2-2" B-9-B SOOT BLOWER ELEMENT CRANK OPERATED
1¼" COMPANION FLANGE FOR SOOT BLOWER
2"-#9 GA TUBES - 2"-4⅛" STP. GILLED RINGS MS-6-A PATT # 8228
⅛"x2½" ASBESTOS ROLL FIRE FELT
GAS OUTLET
GAS INLET
24" I.D.
EXHAUST
ECONOMIZER OUTLET NEAR SIDE ONLY 256
2" #9 GA. TUBES
FROM ℄ ECONOMIZER INLET VALVE
ORIFICE PLATE
¾" DRAIN VALVE F.W. CORP. STOP HERE
7'-3" BACK TO BACK OF CHANNELS
℄ OF BOILER HEATING SURFACE
F.W. CORP. START HERE
"C"
"J"
"L"

DRILLING OF GAS OUTLET
VIEW "A-A"

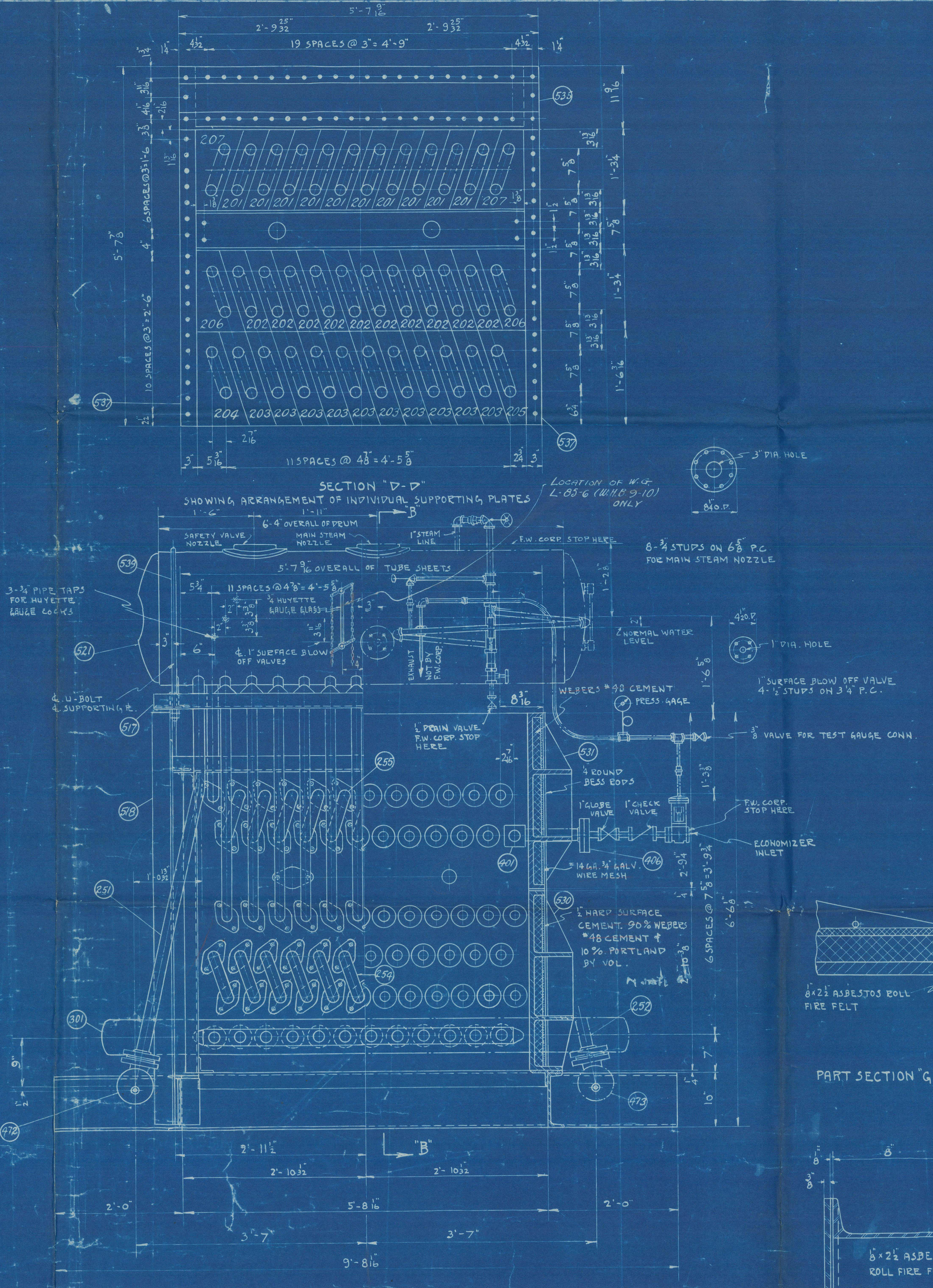
SECTION "B-B"


"K"
4"x4"x⅜" ANGLE
4"x3"x⅜" ANGLE

SECTION "K-K"
ENLARGED DETAIL "L"

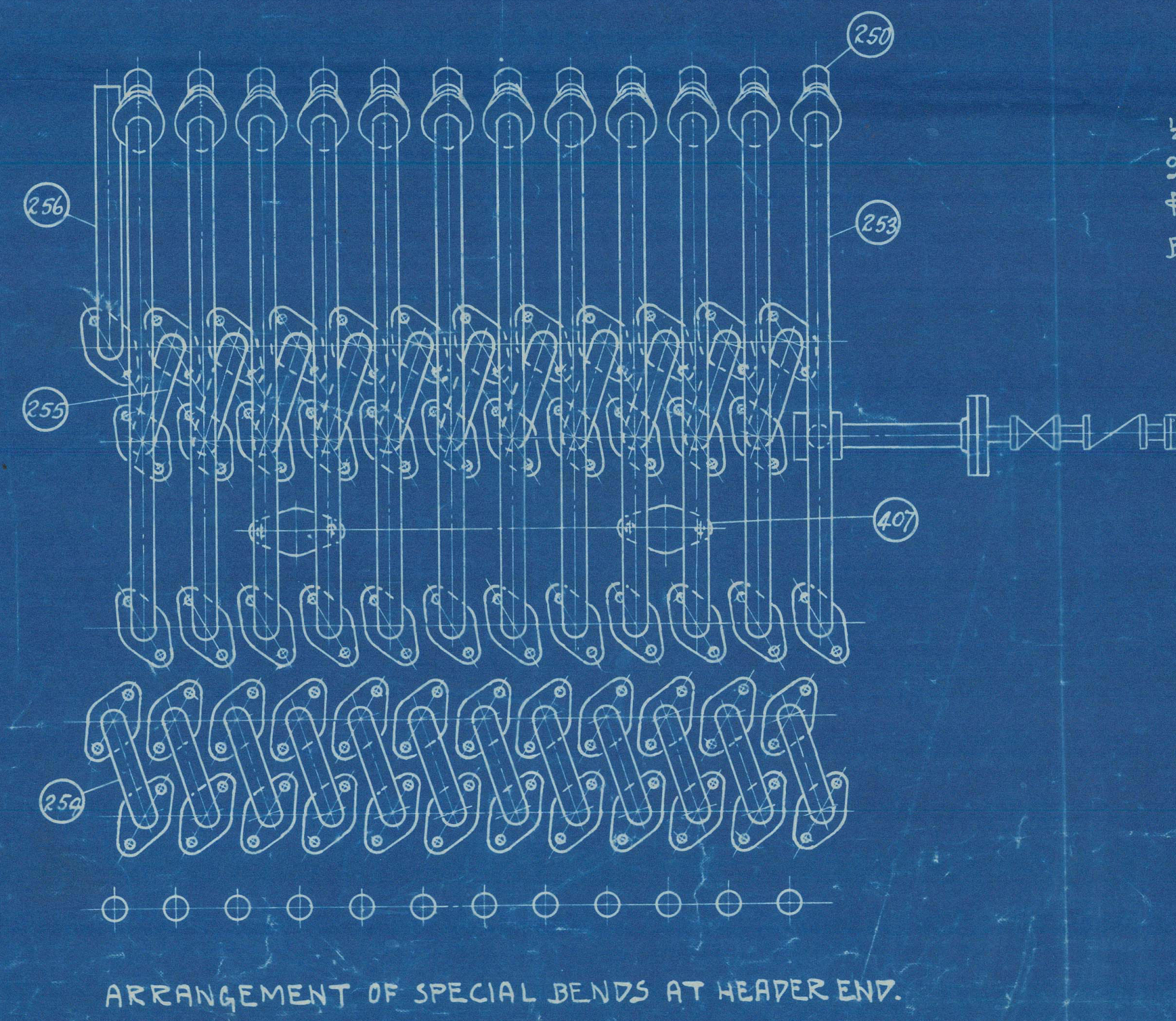

28 SPACES @ 3"= 7'-0"
℄ OF SHIP & BOILER
18 SPACES @ 3"= 4'-6"
9 SPACES @ 3"= 2'-3"
5'-8⅛"

VIEW "C-C"

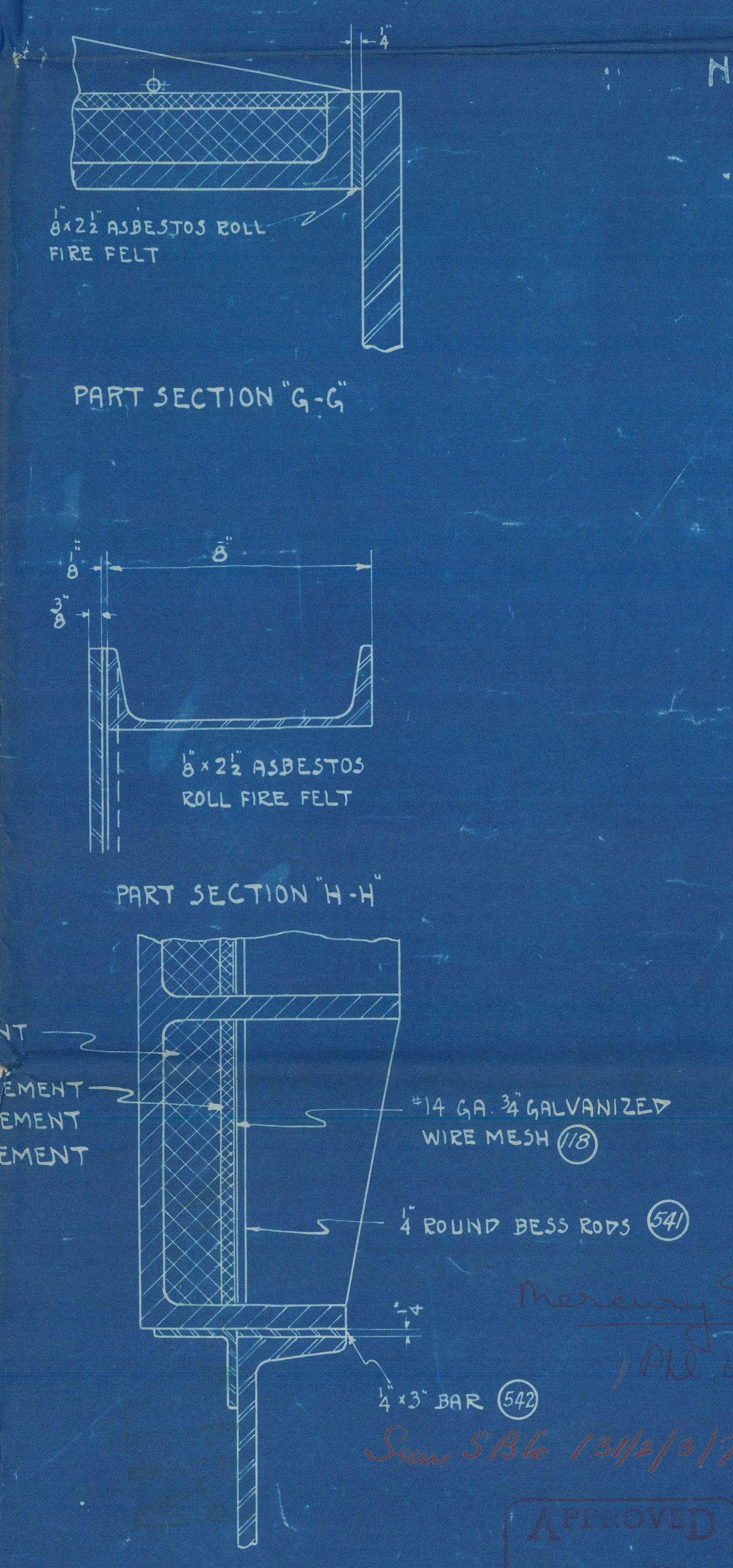

19 SPACES @ 3"= 4'-9"
11 SPACES @ 4⅞"= 4'-5⅝"
201 202 203 204 205 206 207
537
LOCATION OF W.G. L-85-6 (W.H.B. 9-10) ONLY
3" DIA. HOLE
8¼ O.D.
6'-4" OVERALL OF DRUM
SAFETY VALVE NOZZLE
MAIN STEAM NOZZLE
1" STEAM LINE
F.W. CORP. STOP HERE
8-¾ STUDS ON 6⅝ P.C. FOR MAIN STEAM NOZZLE
5'-7 9/16" OVERALL OF TUBE SHEETS
3-¾ PIPE TAPS FOR HUYETTE GAUGE COCKS
¾ HUYETTE GAUGE GLASS
℄ 1" SURFACE BLOW OFF VALVES
EXHAUST NOT BY F.W. CORP.
℄ NORMAL WATER LEVEL
1" DIA. HOLE
4¼ O.D.
1" SURFACE BLOW OFF VALVE 4-½" STUDS ON 3¼" P.C.
℄ U-BOLT ℄ SUPPORTING ℞
½" DRAIN VALVE F.W. CORP. STOP HERE
WEBERS #48 CEMENT
PRESS. GAGE
⅜" VALVE FOR TEST GAUGE CONN.
¼" ROUND BESS RODS
1" GLOBE VALVE
1" CHECK VALVE
F.W. CORP. STOP HERE
ECONOMIZER INLET
#14 GA. ¾" GALV. WIRE MESH
½" HARD SURFACE CEMENT. 90% WEBERS #48 CEMENT & 10% PORTLAND BY VOL.
6 SPACES @ 7⅝"= 3'-9¾"
"B"
2'-11½"
2'-10 3/32"
5'-8 1/16"
3'-7"
9'-8¼"

SECTION "D-D"
SHOWING ARRANGEMENT OF INDIVIDUAL SUPPORTING PLATES

PART VIEW "F-F" PANELS REMOVED PART SECTION "E-E"


250
251
253
256
257
407

ARRANGEMENT OF SPECIAL BENDS AT HEADER END.


⅛"x2½" ASBESTOS ROLL FIRE FELT
⅛"x2½" ASBESTOS ROLL FIRE FELT
WEBERS #48 CEMENT
½" HARD SURFACE CEMENT 90% WEBERS #48 CEMENT & 10% PORTLAND CEMENT BY VOLUME
#14 GA. ¾" GALVANIZED WIRE MESH 118
¼" ROUND BESS RODS 541
¼"x3" BAR 542

PART SECTION "G-G"

PART SECTION "H-H"

PART SECTION "J-J"

Mercury Sun
/ Phl. 6421.

Sun SBlo 131/2/3/7.

APPROVED
OCT 9 - 1930
LLOYD'S REGISTER OF SHIPPING
NEW YORK

John S. Heck

Noted
K.N.P.
29/10/30

BILL OF MATERIAL FOR ONE WASTE HEAT BOILER

MARK	NO. REQD.	DESCRIPTION	PATT. NO.	DWG. NO.
107	3	2" H.H. PLUG COMP. A = 2⅞"		MS-155-C
115	10	50# BAGS WEBERS #48 CEMENT		
116	170	FT. ⅛"x2½ ASBESTOS ROLL FELT		
117	1	BAG PORTLAND CEMENT		
118	23 FT.	48" WIDE #14 GA. GAL. ¾" WIRE MESH		
128	1	2½ DUPLEX SAFETY VALVE SET AT 100# PRESS.		
130	1	1" SURFACE B.D. VALVE		D-295-41-C
201	10	2"x8' U-BEND ELEMENT COMP.		D-281-628-A
202	10	2"x8" " " "		D-281-639-A
203	10	2"x8" " " "		D-281-629-A
204	1	2"x8" " " "		D-281-630-A
205	1	2"x8" " " "		D-281-631-A
206	2	2"x8" " " "		D-281-632-A
207	2	2"x8" " " "		D-281-633-A
250	12	2" #9 GA. TUBE 6" LG.		
251	1	2" #9 GA. SPL. TUBE BEND COMP. 6'-5 7/16" LG.		D-293-331
252	1	2" #9 GA. " " " 6'-5⅝" LG.		"
253	12	2" #9 GA. " " " 4'-7 13/16" LG.		D-292-305
254	12	2" #9 GA. " " " 2'-5" LG.		D-292-3
255	11	2" #9 GA. " " " 2'-5" LG.		"
256	1	2" #9 GA " " " 2'-5 5/16" LG.		D-291-519
257	2	2" #9 GA. RT. ANGLE BENDS 1'-4 5/16" LG.		D-293-331
301	1	6" INLET HEADER COMP. 8'-2" LG.		D-292-249
401	1	2" F.S. SPL. JCT. BOX (5" O.D. x ½" WALL		D-281-863
402	2	4⅜" DIA. x ½ ORIFICE PLATE		D-281-787
404	59	2" SPL. F.S. TUBE FLANGES		D-281-707-C
406	1	6½" DIA. F.S. BLIND FLANGE (1 TAP)		D-291-10
407	2	C.I. CAP	281419	D-281-703
409	2	SOOT BLOWER ELEM. COMP. WITH G-9-B HEAD. CRANK OPERATED WITH FLOATING PACKING GLAND		DE-281-3-C
470	2	2"x2"x2" SS TEES WITHOUT ½ TAP	11353	DE-281-37
472	1	6½ DIA. F.S. BLIND FLANGE X = 3 7/32" (¾" TAP)		D-281-701
473	1	6½ DIA. " " Y = 3 7/32" "		"
501	1	STEEL SUPPORTING FRAME COMP.		D-294-906
502	1	12" CHANNEL COMP.		D-294-907
503	1	12" " "		"
504	1	12"-20.7# CHANNEL 5'-8 1/16" LONG		"
505	1	12"-20.7# " 5'-10" "		"
506	1	8" CHANNEL COMP.		D-294-25-B
507	1	⅜" STEEL PANEL COMP.		D-283-295-A
508	1	⅜" " " "		"
509	1	¼" " " "		D-293-332
510	1	¼" " " "		"
512	1	9"-13.4# CHANNEL 5'-8 1/16" LG.		D-294-25-B
513	1	8" CHANNEL COMP.		"
514	1	8" " "		"
515	1	8"-11.5# CHANNEL 5'-7 9/16" LONG.		"
516	2	3"x3"x⅜" ANGLES 5'-7 9/16" LONG		"
517	1	4"x3"x⅜" " 6'-5" "		D-294-907
518	2	4"x4"x⅜" " 6'-7⅝" "		D-294-907
519	1	3"x3"x⅜" ANGLE COMP.		"
520	1	" " "		"
521	1	24" I.D. DRUM COMP.		D-294-883-C
524	2	¾x7¼"x15" ST'L. LIFTING LUGS		D-291-109-A
525	2	¾"x6⅞"x15" " "		"
528	1	1¼"x5'-7 9/16x5'-10 13/16" ST'L. TUBE SHEET		D-283-298-A
530	2	C.I. LINING PLATE	2937	D-283-297-A
531	2	" " "	2938	D-283-323-A
533	1	" SUPPORTING CHANNEL	281434	D-281-638
535	1	" FILLER PLATE	281435	D-281-709
537	2	" " PIECE	281436	D-281-637
539	2	⅞" U-BOLTS R = 12⅝" L = 18½"		MSZ-77-A
541	12	¼" DIA. BESS. RODS 5'-7½" LG.		
542	2	¼"x3" BAR 6'-8½ LG.		D-291-562
543	1	SKID		D-293-418

COMPANION DRAWING

DRUM ASSEMBLY D-294-883
ASSEMBLY OF FEED WATER CONTROLL D-294-960-B

Note → FOR DRUM ASSEMBLY OF WHB 18-19-20-21 SEE D-304-1151

CONTRACT

1394 SQ.FT. OF HEATING SURFACE
FUEL - WASTE GASES
FLANGES - 250# A.E.S.-C. STD. 1/16" RAISED FACE OF FITTINGS

NOTES

DO NOT SCALE THIS DRAWING. USE FIGURE DIMENSIONS ONLY.
SOOT BLOWERS TO OPERATE @ 50# PRESSURE
GAS CHAMBER TO BE MADE GAS TIGHT BY PACKING JOINTS WITH ⅛"x2½" ASBESTOS ROLL FELT SO THAT GAS CHAMBER WILL WITHSTAND @ GAS PRESSURE OF @ PLUS OR MINUS THREE POUNDS PER SQUARE INCH

HANDING

REFERENCE DRAWINGS

PROPOSED FOSTER WASTE HEAT BLR. PMB-291-6

LETTER	DATE	DESCRIPTION
E	8-5-30	Water Gauge note changed R.M.
D	7-31-30	Position of Water Column changed
C	2-24-30	LINE No 544 ADDED B
B	9-13-29	RELOCATED ¾" HUYETTE GAUGE GLASS CHANGED DOWNCOMER TUBE V.S.
A	9-5-29	ADDED FEED WATER CONTROLLER. CORRECTED BENDS AT HDR. END & CHANGED S.V. V.S.

REVISIONS

USED ON
W.H.B. 19-21
L-101 (W.H.B. 18)
L-89-93 (W.H.B. 11-15)
L-85-6 (W.H.B. 9-10)

SUN SHIPBUILDING & DRY DOCK CO.
CHESTER PENNA

FOSTER MARINE BOILER CORP.
ENGINEERS

WASTE HEAT BOILER
APPLIED TO
4 CYLINDER 2800 S.H.P. SUN DOXFORD
OPPOSED PISTON OIL ENGINE
GENERAL ARRANGEMENT
AND
ASSEMBLY
LONGITUDINAL & CROSS SECTION

FOSTER WHEELER CORP.
165 BROADWAY NEW YORK

SCALE 1" = 1 FT.
DRN. V.S. DATE 8-6-29
CKD. DATE
APP. J.S.S. DATE 8-10-29
ORDER No. SEE TABLE
DRAWING No. D. 295-41-E

THIS DRAWING SUPERSEDES
THIS DRAWING SUPERSEDED BY

D-295-41-E

D-295-41-E

W1199-0064

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FOSTER WHEELER CORP., N.Y.
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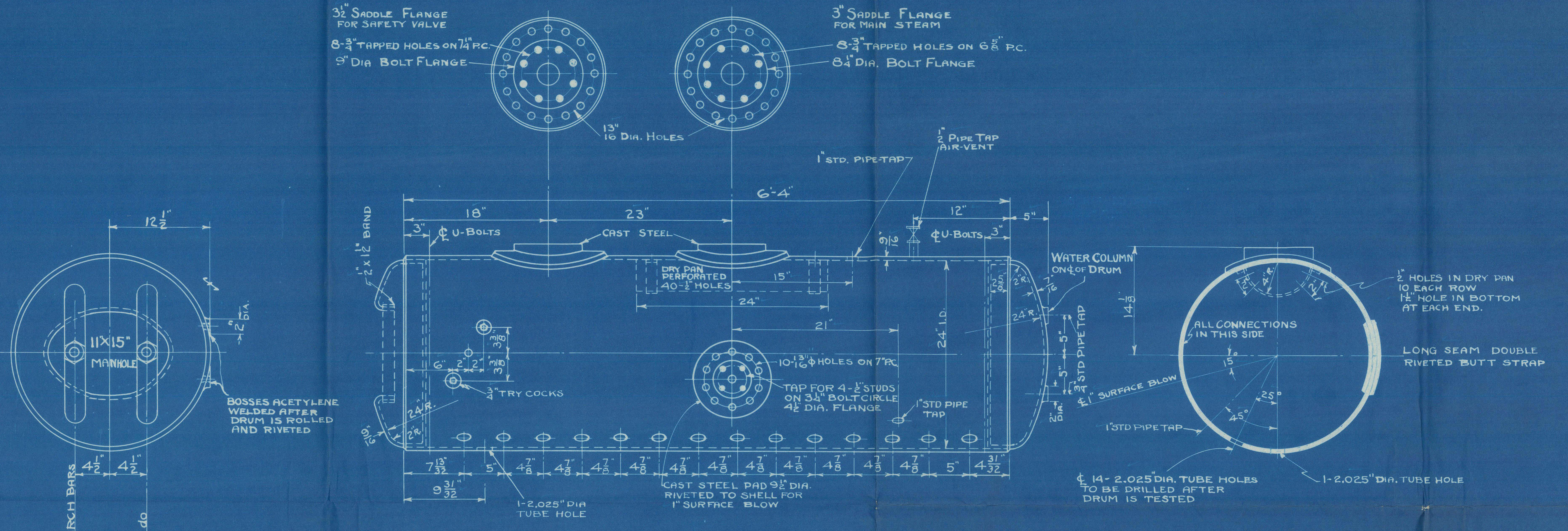
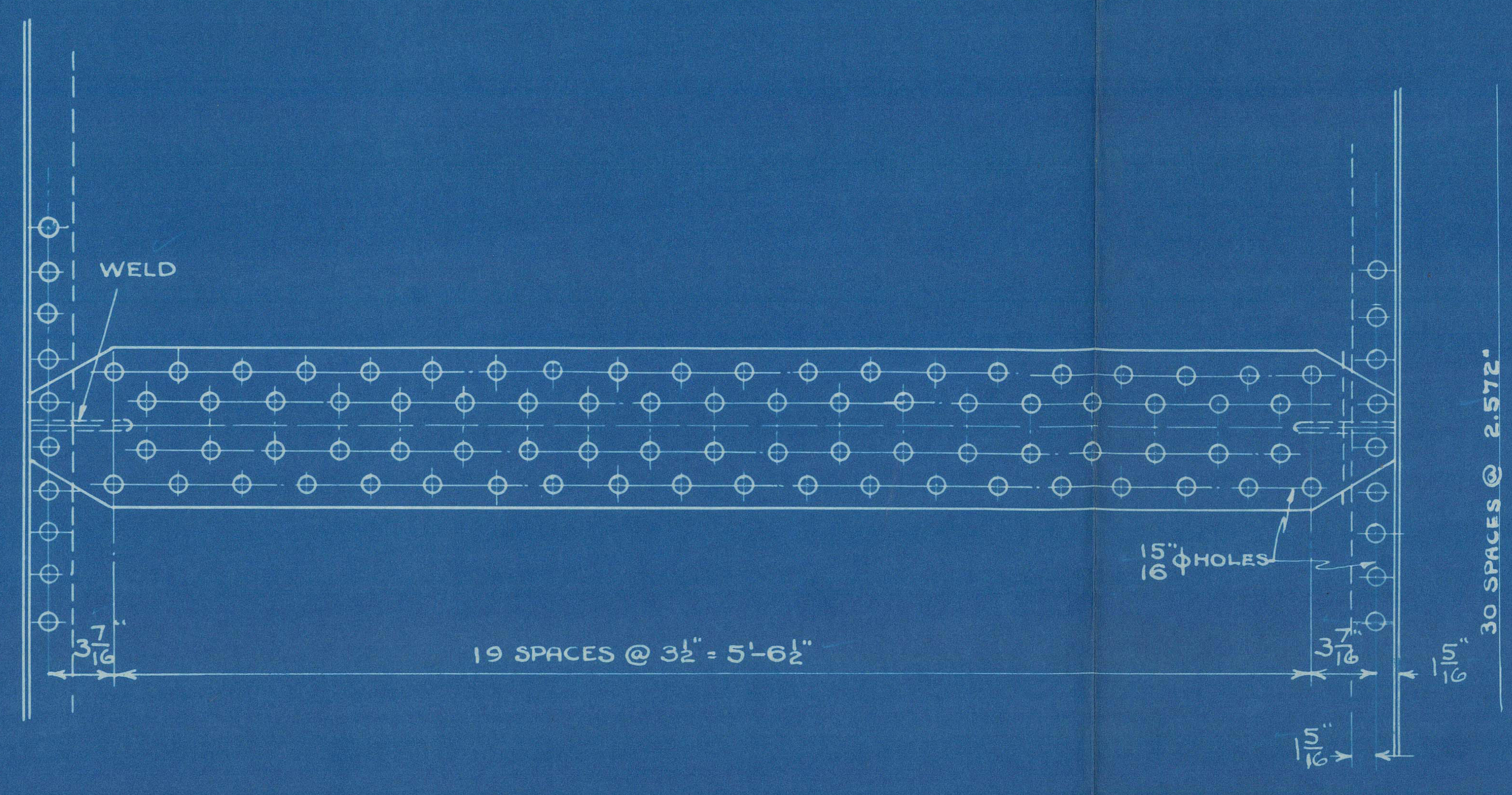
NOTES



3½" SADDLE FLANGE FOR SAFETY VALVE
8-¾" TAPPED HOLES ON 7¼" P.C.
9" DIA BOLT FLANGE
3" SADDLE FLANGE FOR MAIN STEAM
8-¾" TAPPED HOLES ON 6⅝" P.C.
8¼" DIA. BOLT FLANGE
13/16 DIA. HOLES
1" STD. PIPE-TAP
½" PIPE TAP AIR-VENT
6'-4"
18"
23"
12"
5"
3"
℄ U-BOLTS
CAST STEEL
℄ U-BOLTS
3"
9/16
½" x 1½" BAND
DRY PAN PERFORATED 40-½" HOLES
15"
24"
21"
24" I.D.
WATER COLUMN ON ℄ OF DRUM
7/16
2⅝
2" R.
24" R.
5"
5"
¾" STD PIPE TAP
2" DIA.
6"
2"
2"
3⅜"
3⅜"
¾" TRY COCKS
10-13/16 ϕ HOLES ON 7" P.C.
TAP FOR 4-½" STUDS ON 3¼" BOLT CIRCLE 4½" DIA. FLANGE
1" STD PIPE TAP
24" R.
2" R.
9/16
7 13/32
5"
4⅞"
4⅞"
4⅞"
4⅞"
4⅞"
4⅞"
4⅞"
4⅞"
4⅞"
4⅞"
4⅞"
5"
4 31/32"
9 31/32"
1-2,025" DIA TUBE HOLE
CAST STEEL PAD 9½" DIA. RIVETED TO SHELL FOR 1" SURFACE BLOW
12½"
11" X 15" MANHOLE
2" DIA.
BOSSES ACETYLENE WELDED AFTER DRUM IS ROLLED AND RIVETED
4½"
4½"
℄ ARCH BARS
do
14⅛
4" R.
2"
2"
½" HOLES IN DRY PAN 10 EACH ROW 1½" HOLE IN BOTTOM AT EACH END.
ALL CONNECTIONS IN THIS SIDE
15°
25°
45°
℄ 1" SURFACE BLOW
1" STD PIPE TAP
LONG SEAM DOUBLE RIVETED BUTT STRAP
℄ 14-2.025" DIA. TUBE HOLES TO BE DRILLED AFTER DRUM IS TESTED
1-2.025" DIA. TUBE HOLE

SHELL PLATE & HEADS - MARINE STEEL 55000#
ALL HOLES TO BE DRILLED.



WELD
15/16" ϕ HOLES
3 7/16"
19 SPACES @ 3½" = 5'-6½"
3 7/16"
1 5/16"
1 5/16"
30 SPACES @ 2.572"

REAR VIEW OF DRUM SHOWING BUTT STRAPS

SHELL PLATE - 9/16"
STEEL RIVETS - 7/8"
RIVET HOLES - 15/16"
PLAIN HEAD - 7/16"
MANHOLE HEAD - 9/16"
INSIDE BUTT STRAP - ½"
OUTSIDE " " - 7/16"

DESIGN PRESSURE - 200#
EFFICIENCY OF JOINT - 73.2%
EFFICIENCY OF LIGAMENT - 59%
SAFE WORKING PRESSURE - 303#

Sun S B Co 13½/2/3/7

APPROVED
OCT 9 - 1930
LLOYD'S REGISTER OF SHIPPING
NEW YORK
John S. Heck

Noted
H.M.P.
29/10/30

"Mercury Sun"
Phl. 6421.

COMPANION DRAWINGS
D-304-1152 DEVELOPMENT OF DRUM PLATE
D-293-327 DETAIL OF DRUM HEADS

GENERAL ARRGT D-295-41-E

LETTER	DATE	DESCRIPTION

REVISIONS

HANDING

ONE AS SHOWN

SUN SHIPBUILDING
AND
DRYDOCK COMPANY
CHESTER - PA.

24" INSIDE DIA. OF DRUM
100# WORKING PRESSURE

FOSTER WHEELER CORP.
165 BROADWAY NEW YORK

WHB 18-19-20-21
USED ON

SCALE 1½" = 12"
DMN. E.I.B. & T.C. DATE 10-2-30
CHKD. Gley DATE 10-3
APPD. Gley DATE 10-3

ORDER NO.
SEE TABLE

DRAWING NO.
D -304-1151

THIS DRAWING SUPERSEDES
THIS DRAWING SUPERSEDED BY

D -304-1151

D -304-1151

W1199-0062

"Mercury Sun"

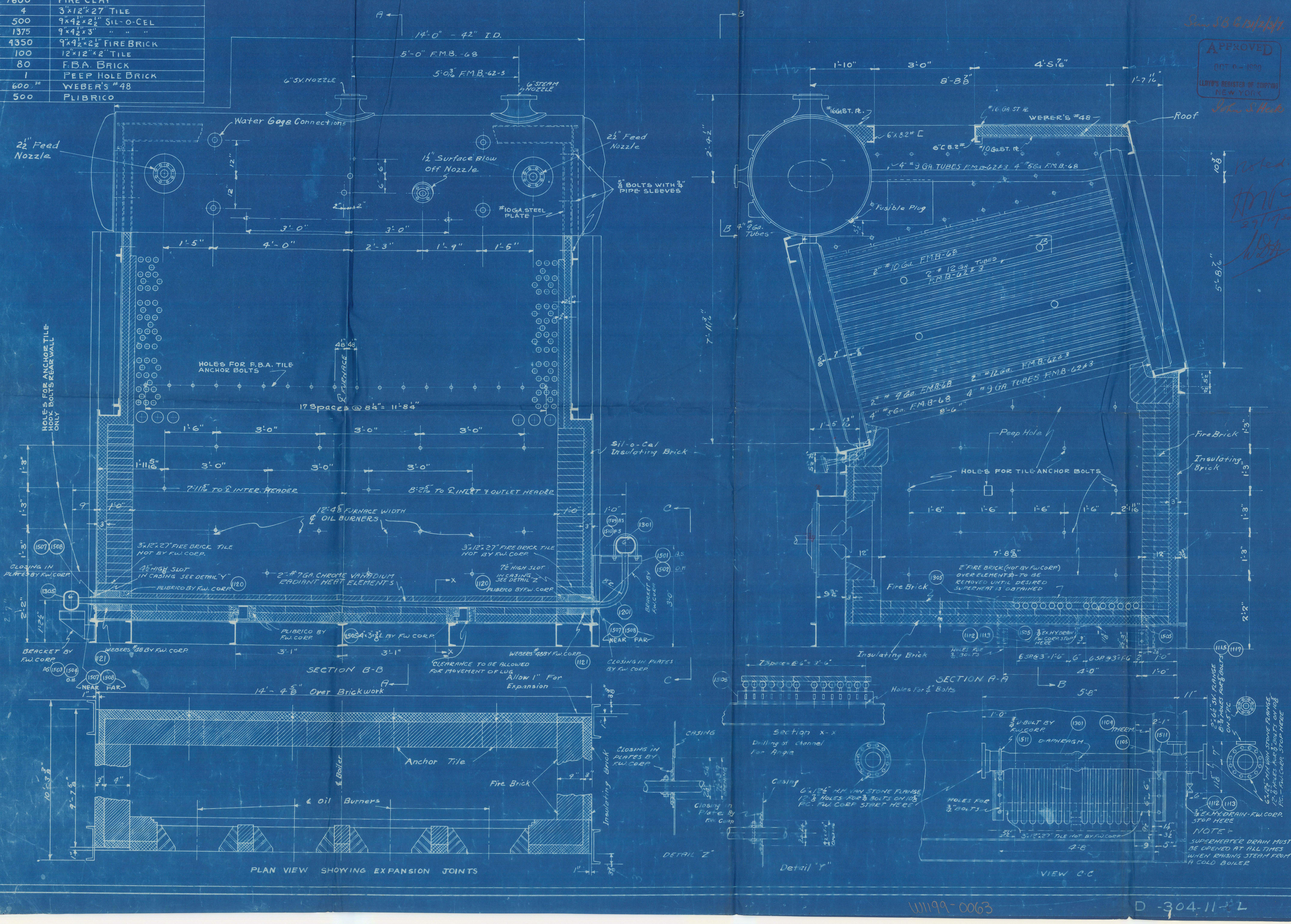
PLL. 6421.

W1199-0063

London

LIST OF BRICK & INSULATING MATERIAL FOR ONE UNIT

QUANITY	DESCRIPTION
44	F.B.D. TIE BRICK
1600 #	FIRE CLAY
4	3"×12"×27" TILE
500	9"×4½"×2½" SIL-O-CEL
1375	9"×4½"×3" " " "
4350	9"×4½"×2½" FIRE BRICK
100	12"×12"×2" TILE
80	F.B.A. BRICK
1	PEEP HOLE BRICK
600 #	WEBER'S #48
500	PLIBRICO


A
14'-0" - 42" I.D.
5'-0" F.M.B.-68
5'-0 3/16" F.M.B.-62-3
6" S.V. NOZZLE
6" STEAM NOZZLE
Water Gage Connections
2½" Feed Nozzle
1½" Surface Blow Off Nozzle
2½" Feed Nozzle
⅝" BOLTS WITH ¾" PIPE SLEEVES
#10 GA. STEEL PLATE
12"
12"
6"
6"
2"
2"
3'-0"
3'-0"
1'-5"
4'-0"
2'-3"
1'-9"
1'-5"
2'-9½"
7'-11 3/16"
HOLES FOR F.B.A. TILE ANCHOR BOLTS
℄ FURNACE
4⅛" 4⅛"
17 Spaces @ 8¼" = 11'-8¼"
HOLES FOR ANCHOR TILE HOOK BOLTS REAR WALL ONLY
1'-6"
3'-0"
3'-0"
3'-0"
1'-11 5/16"
3'-0"
3'-0"
3'-0"
Sil-o-Cel Insulating Brick
7'-11 5/16" TO ℄ INTER. HEADER
8'-2 5/16" TO ℄ INLET & OUTLET HEADER
1'-3"
1'-3"
1'-3"
9"
1'-0"
3"
12'-4⅝" FURNACE WIDTH
℄ OIL BURNERS
1'-0"
1'-0"
3"
1509 NS
1510 FS
1301
1507
1508
3"×12"×27" FIRE BRICK TILE NOT BY F.W. CORP.
3"×12"×27" FIRE BRICK TILE NOT BY F.W. CORP.
1501 A.S
1502 O.H
CLOSING IN PLATES BY F.W. CORP.
4½" HIGH SLOT IN CASING SEE DETAIL "Y"
2" #7 GA. CHROME VANADIUM RADIANT HEAT ELEMENTS
7½" HIGH SLOT IN CASING SEE DETAIL "Z"
1120
1120
PLIBRICO BY F.W. CORP.
PLIBRICO BY F.W. CORP.
1305
6"
X
X
8 R.
BRACKET BY F.W. CORP
3'-0"
2'-7"
2'-2"
1'-2½"
1201
PLIBRICO BY F.W. CORP.
1505 4"×3"×⅜" L BY F.W. CORP.
1507 1508 NEAR FAR
BRACKET BY F.W. CORP.
WEBERS #48 BY F.W. CORP.
1121
3'-1"
3'-1"
WEBERS #48 BY F.W. CORP
1121
CLEARANCE TO BE ALLOWED FOR MOVEMENT OF LUG
CLOSING IN PLATES BY F.W. CORP.
A.S. 1503 1504 O.H.
1507 1508 NEAR FAR
SECTION B-B
C
C
Allow 1" For Expansion
14'-4⅝" Over Brickwork
1"
3⅜"
1"
10'-3⅜"
9'-7⅝"
3"
4"
Anchor Tile
℄ Boiler
Fire Brick
9"
3"
Insulating Brick
℄ Oil Burners
1"
3⅜"
PLAN VIEW SHOWING EXPANSION JOINTS
CASING
CLOSING IN PLATES BY F.W. CORP.
5½"
2¼"
7½" × 3'-9" OPENING
DETAIL "Z"
B
1'-10"
3'-0"
4'-5 7/16"
8'-8⅞"
1'-7 11/16"
2'-9½"
#16 GA. ST. PL.
6"×8.2# [
#16 GA. ST. PL.
WEBER'S #48
Roof
6" [8.2#
#10 Ga. ST. PL.
4" #9 GA. TUBES F.M.B.-62 & 3
4" #5 Ga. F.M.B.-68
10⅜"
Fusible Plug
5½"
B 4" #9 Ga. Tubes
B
2" #10 Ga. F.M.B.-68
2" #12 GA. TUBES F.M.B.-62 & 3
5'-8 7/16"
7'-11 3/16"
⅝"
7"
⅝"
2" #9 Ga. F.M.B.-68
2" #12 Ga. F.M.B.-62 & 3
4" #5 Ga. F.M.B.-68
4" #9 GA. TUBES F.M.B.-62 & 3
8'-6"
1'-5 13/16"
5½"
2¼"
Peep Hole
Fire Brick
Insulating Brick
HOLES FOR TILE ANCHOR BOLTS
1'-6"
1'-6"
1'-6"
1'-6"
2'-1 11/16"
1'-3"
1'-3"
1'-3"
3"
12"
7'-8⅝"
12"
3⅜"
2'-2"
2" FIRE BRICK (NOT BY F.W. CORP.) OVER ELEMENTS - TO BE REMOVED UNTIL DESIRED SUPERHEAT IS OBTAINED
1305
Fire Brick
9¾"
3"
3"
1112
1113
1505
¾" EX.HY. DRAIN F.W. CORP. STOP HERE
3"
1505
Insulating Brick
HOLES FOR ¾" BOLTS
6 SP. @ 3" = 1'-6"
6"
6 SP. @ 3" = 1'-6"
2"
2⅞"
1'-0"
4'-0"
1'-0"
SECTION A-A
B
1115
1117
7 Spaces @ 6" = 3'-6"
1505
Holes For ¾" Bolts
Section X-X
Drilling of Channel For Angle
5'-8"
11"
1'-0"
¾" U-BOLT BY F.W. CORP.
1301
1109
THERM.
1511
DIAPHRAGM
1105
1511
2'-1"
2"×6½" S.V. FLANGE 8-¾" HOLES FOR ⅝" BOLTS ON 5" P.C.
Casing
6"×12½" H.H. VAN STONE FLANGE 12-⅞" HOLES FOR ¾" BOLTS ON 10⅝" P.C. F.W. CORP. START HERE
Closing in Plate By F.W. Corp
2¼"
2¼"
4½" × 3'-9" OPENING
Detail "Y"
HOLES FOR ¾" BOLTS
7"
6"
6"
11⅛"
6"
1112
1113
¾" EX.HY. DRAIN - F.W. CORP. STOP HERE
6"×12½" H.H. VAN STONE FLANGE 12-⅞" HOLES FOR ¾" BOLTS ON 10⅝" P.C. - F.W. CORP. STOP HERE
5½"
3"×12"×27" TILE NOT BY F.W. CORP.
9½"
1¼"
3½"
5"
9
4'-8"
VIEW C-C

NOTE:- SUPERHEATER DRAIN MUST BE OPENED AT ALL TIMES WHEN RAISING STEAM FROM A COLD BOILER

Sun SB Co 131/2/3/7.

APPROVED
OCT 9 - 1930
LLOYD'S REGISTER OF SHIPPING
NEW YORK
John S. Heck

Noted.
H.N.P.
29/10/30.

CONTRACT

400 HP FOSTER WATER TUBE BOILER (NEW)
SUPERHEAT - 100°
FUEL - OIL
PRESSURE - 200# PER SQ.IN.
INLET FITTINGS - NOT BY F.W. CORP.
OUTLET " - " " "
FLANGES - F.S. HIGH HUB VAN STONE 250# A.E.S.C.
2" MARINE STD. SAFETY VALVE SET @ 205#

REFERENCE DRAWINGS

PRELIM. ARRGT. F.W. CORP. P.S. 291-17
BOILER DETAILS H.W. & W. # P.S.C. 62

NOTES

DO NOT SCALE THIS DRAWING USE FIGURE DIMENSIONS ONLY

HANDING

ONE AS SHOWN

BILL OF MTL. FOR ONE SUPERHEATER COMP.

LINE NO.	NO. RQD.	DESCRIPTION	PATT. NO.	DRWG. NO.
1104	1	Therm. chem. type 600 deg. #1444 Armoured		
1105	1	½" " well 3½" size		MSZ-360
1108	28	2" H.H. Plugs comp. A-2⅞" 3 SPARES		MS-155-C
1112	2	¾" Ex. Hy. Pipe Nipples 6" long.		
1113	2	¾" " Hanck bronze bdy. globe valves		
1115	1	2"×4¼" Durabla flange gasket		
1117	1	2" cons. form D.S.R.B. flgd s.v. set @ 205# press.		MSZ-279-C MS-82-A
1120	500	Lbs. Plibrico		
1121	2	50# Bags Webers 48 Cement		
1201	14	2" Spl. bare tube elements comp.		D-302-34
1301	1	6" Inlet & Outlet Hdr. 6'-7" long comp.		D-303-48
1305	1	6" Intermediate Hdr. 4'-10" long comp.		D-303-48
1501	1	Header Bracket complete		D-302-35
1502	1	" " "		"
1503	1	" " "		"
1504	1	" " "		"
1505	2	4"×3"×⅜" Angles 3'-9" long		D-301-89
1507	3	Steel closing in PL. #5 A-2¾" B-1'-11¾" C-7½" D-4¼"		D-281-22
1508	3	" " " " A-2¾" B-1'-11¾" C-4¼" D-7½"		"
1509	1	" " " " A-5¾" B-1'-11¾" C 7½" D-4¼"		"
1510	1	" " " " A-5¾" B-1'-11¾" C-4¼" D-7½"		"
1511	2	¾" U-Bolts comp. R-3⅜" L-4¾"		MSZ-77-A
1123	1	2" H.H. PLUG DRIVING TOOL		
1124	1	2" #7 GA. EXPANDER COMP.		
1125	1	2" BELLING TOOL		

REVISIONS

LETTER	DATE	DESCRIPTION
L	9-23-30	ADDED FMB·69-70 - S-12884-5 R.M.
K	8/1/30	Notes For F.M.B.-68 Added View Showing Expansion Joints Added F.D.
J	5/1/30	TODD OIL BURNERS OMITTED UNDER REFERENCE DRAWINGS
H	4/28/30	ROOF DETAIL REVISED, BOILER BAFFLE REVISED, AND GA. OF BOILER TUBES CORRECTED, BOILER B.O. CONNECTION REVISED. R.M.
G	2/21/30	ADDED LIST OF BRICK & INSULATING MATERIAL REQ'D. ROOF INSULATION REVISED. D.B.
F	2-17-30	REVISE STEEL WORK ON TOP OF BOILER, REVISED BRICKWORK IN BOTTOM OF WALL LOCATION OF ANCHOR BOLTS - L.H.M.
E	2/17/30	REVISED TO INCLUDE S-12802
D	2-10-30	BILL OF MATERIAL ADDED ~~AND~~ MADE AN ASSEMBLY. R.M.
C	1/28/30	Superheater Support Bracket moved to clear rear 12" Vertical Channel H.G.K.
B	1/20/30	Method of anchoring Superheater Elements changed. C.W.C.
A	JAN. 15 1930	HANDING REVERSED - CLOSING IN PLATES REVISED - ELEMENT & OUTLET HEADER SUPPORT CHANGED - DWG. COMPLETED J.T.

SUN SHIPBUILDING & DRY DOCK CO.
CHESTER, PENNA.

FOSTER RADIANT HEAT SUPERHEATER
APPLIED TO
FOSTER WATER TUBE BOILER
GENERAL ARRANGEMENT AND ASSEMBLY
LONGITUDINAL AND CROSS SECTIONS

FOSTER WHEELER CORP.
165 BROADWAY NEW YORK

SCALE ¾" = 1'-0"
DMN. J.T. DATE 1-9-30
CHKD. H.H. DATE 1-6-30
APPD. DATE 1-15-30

ORDER No.
FMB 62-3 -68 69-70
S-12774-5 12802 12884-5

DRAWING No.
D -304-11-L

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W1199-0063